TEST REPORT

Product Name:	10W LED Blub RGBCW
Trade Mark:	N/A
Model Number:	ZJ-BWBL1H-RGBWW ZJ-BWBOH-RGBWW
Prepared For:	JM Zengge Lighting Co., Ltd
Address:	5th Floor, Building 1, No. 19 Gaoxin East Road, Jianghai District, Jiangmen City
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
Date of Receipt:	2024-01-23
Test Date:	2024-01-23 to 2024-02-03
Issue Date:	2024-02-03
Report No.:	DL-20240131078S

TEST REPORT
COMMISSION REGULATION (EU) 2019/2020

laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012

Report Number..... :	DL-20240131078S
Date of issue ..... :	2024-02-03
Total number of pages ..... :	14 pages
Applicant's name ..... :	JM Zengge Lighting Co., Ltd
Address ..... :	5th Floor, Building 1, No. 19 Gaoxin East Road, Jianghai District, Jiangmen City
Test specification:	ErP –COMMISSION REGULATION (EU) 2019/2020
Test procedures:	laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012
Test Report Form No. .....:	EU_2019_2020_A
Test Report Form(s) Originator .....:	DL
Master TRF.....:	2021-05

This test report is based on the content of the internal test program. The test program considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by Shenzhen HUAK Testing Technology Co., Ltd.

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Test item description..... :	10W LED Blub RGBCW
Trade Mark..... :	N/A
Manufacturer ..... :	JM Zengge Lighting Co., Ltd
Factory ..... :	JM Zengge Lighting Co., Ltd
Model/Type reference..... :	ZJ-BWBL1H-RGBWW ZJ-BWBOH-RGBWW
Ratings..... :	230V~ 50/60Hz 10W

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	Shenzhen DL Testing Technology Co., Ltd.	
Testing location/ address ..... :		101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China	
☐	**Associated Testing Laboratory:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :		Jimi Wu	
Approved by (name, function, signature) .. :		Jade Yang	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

Summary of testing:	
Tests performed (name of test and test clause): For the purpose of assessing the conformity of the product related to the ecodesign requirements set in Regulation ☒ (EU) 2019/2020	**Testing location:** Shenzhen DL Testing Technology Co., Ltd. 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
Copy of marking plate: N/A	
Summary of testing: These products meet the requirement of the implementation measure.	

Test item particulars.....:	
Lamp cap .....:	--
Lamp identification.....:	LED
Rated luminous flux (lm) .....:	800
Rated Ra.....:	80
Rated beam angle (^{o})……...:	N/A
Rated life time (h)……...:	20000
Rated CCT (K) ……...:	6500
Dimensions……...:	N/A
Mains or non-mains……...:	MLS
Dimmable……...:	Yes
Cap connection……...:	N/A
Possible test case verdicts:	
- test case does not apply to the test object .....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.
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"(See Annex #)" refers to additional information appended to the report.
Throughout this report a point is used as the decimal separator.
Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods

General product information:

The product is 10W LED Blub RGBCW.

Clause	Requirement + Test	Result - Remark	Verdict
1	**Subject matter and scope**		—
	Type:		—
	Light sources……..……:	Yes ☒ No ☐	—
	Separate control gears……...……..:	Yes ☐ No ☒	—
2	**Definitions**		**P**
	Chromaticity coordinates		—
	0,270< x <0,530 – 2,3172 x^2 + 2,3653 x — 0,2199<y < – 2,3172 x^2 + 2,3653 x — 0,1595	x=0.286, y=0.293	P
Annex I	**Definitions applicable for the Annexes**		**P**
	Directional light source		N/A
	A light source having at least 80 % of total luminous flux within a solid angle of π sr (corresponding to a cone with angle of 120°);		N/A
	Non-directional light source		P
	A light source that is not a directional light source;		P
	Useful luminous flux		P
	For non-directional light sources it is the total flux emitted in a solid angle of 4π sr (corresponding to a 360° sphere);		P
	For directional light sources with beam angle ≥ 90° it is the flux emitted in a solid angle of π sr (corresponding to a cone with angle of 120°);		N/A
	For directional light sources with beam angle < 90° it is the flux emitted in a solid angle of 0,586π sr (corresponding to a cone with angle of 90°);		N/A
	Beam angle		N/A
Annex II	**Ecodesign requirements**		**P**
1. (a)	Energy efficiency requirements		P
	On-mode Power Pon (W):	8.35W	P
	Maximum allowed power P_{onmax} (W): Ponmax = C x (L + Φuse/(F x η)) x R	Ponmax = 1.00 x (1.5 + 824.3/ (1.0 x 120)) x 1.0=8.37	P
	Rated Φuse (lm):	800	P
	Basic values for correction factor (C):	1.02	P
	Efficacy factor (F) is:		P

Clause	Requirement + Test	Result - Remark	Verdict
	1,00 for non-directional light sources0,85 for directional light sources	1.0	P
	0,85 for directional light sources		N/A
	CRI factor (R) is		P
	0,65 for CRI ≤ 25		N/A
	(CRI+80)/160 for CRI > 25	R=(83.2+80)/160=1.02	P
	Threshold efficacy (η) (lm/W):	120	P
	End loss factor (L) (W):	1.5	P
	The standby power Psb of a light source shall not exceed 0,5 W		N/A
	The networked standby power Pnet of a connected light source shall not exceed 0,5 W		N/A
1. (b)	Minimum energy efficiency for separate control gear at full-load:		N/A
	Control gear for LED or OLED light sources P_{cg}0,81/(1,09 × P_{cg}0,81 + 2,10)		N/A
	The no-load power Pno of a separate control gear shall not exceed 0.5 W		N/A
	The standby power Psb of a separate control gear shall not exceed 0.5 W		N/A
	The networked standby power Pnet of a connected separate control gear shall not exceed 0.5 W		N/A
2	Functional requirements		P
	Colour Rendering Index CRI: ⩾80	83.2>80	P
	Displacement Factor DF at Power Input Pon for LED and OLED MLS:		P
	No limit at Pon ⩽ 5 W DF ⩾ 0.5 at 5 W < Pon ⩽ 10 W, DF ⩾ 0.7 at 10 W < Pon ⩽ 25 W DF ⩾ 0.9 at 25 W < Pon		N/A
	Lumen maintenance factor (for LED and OLED) $X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$ If the calculated value for $X_{LMF,MIN}$ exceeds 96,0 %, an $X_{LMF,MIN}$ value of 96,0 % shall be used	80.7%	P
	Survival Factor (for LED and OLED): At least 9 light sources of the test sample must be operational after completing the test in Annex V of this Regulation.	100%>90%	P

Clause	Requirement + Test	Result - Remark	Verdict
	Colour consistency for LED and OLED light sources: Variation of chromaticity coordinates within a six-step MacAdam ellipse or less	4.9	P
	Flicker for LED and OLED MLS: Pst LM ≤ 1.0 at full-load	0.011	P
	Stroboscopic effect for LED and OLED MLS: SVM ≤ 0.4 at full-load	0.05	P
3.(a)	Information to be displayed on the light source itself		N/A
	Useful luminous flux (lm)		N/A
	Correlated colour temperature (K)		N/A
	Beam angle (°) For directional light sources		N/A
3.(b)	Information to be visibly displayed on the packaging		N/A
3.(b)(1)	Light source placed on the market, not in a containing product		N/A
	(a) Useful luminous flux (lm): - In a font at least twice as large as the display of the on-mode power (Pon) - Clearly indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		N/A
	(b) Correlated Colour Temperature, rounded to the nearest 100 K		N/A
	(c) Beam angle in degrees For directional light sources		N/A
	(d) electrical interface details, e.g. cap- or connector-type, type of power supply (e.g. 230 V AC 50 Hz, 12 V DC)		N/A
	(e) L70B50 lifetime for LED and OLED light sources, expressed in hours		N/A
	(f) on-mode power (Pon), expressed in W		N/A
	(g) standby power (Psb), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging		N/A
	(h) networked standby power (Pnet) for CLS, expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging		N/A
	(i) Colour Rendering Index, rounded to the nearest integer		N/A
	(j) Clear indication to this effect, if CRI< 80, and the light source is intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI< 80.		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	(k) Information on non-standard conditions (such as ambient temperature Ta ≠ 25 ° C or specific thermal management is necessary)		N/A
	(l) a warning if the light source cannot be dimmed or can be dimmed only with specific dimmers or with specific wired or wireless dimming methods. In the latter cases a list of compatible dimmers and/or methods shall be provided on the manufacturer's website		N/A
	(m) if the light source contains mercury: a warning of this, including the mercury content in mg rounded to the first decimal place		N/A
	(n) if the light source is within the scope of Directive 2012/19/EU, without prejudice to marking obligations pursuant to Article 14(4) of Directive 2012/19/EU, or contains mercury: a warning that it shall not be disposed of as unsorted municipal waste		N/A
3.(b)(2)	Separate control gears		N/A
	For separate control gear placed on the market as a stand-alone product, not as a part of a containing product		N/A
	(a) the maximum output power of the control gear (for HL, LED and OLED) or the power of the light source for which the control gear is intended (for FL and HID)		N/A
	(b) the type of light source(s) for which it is intended		N/A
	(c) the efficiency in full-load, expressed in percentage		N/A
	(d) the no-load power (Pno), expressed in W and rounded to the second decimal, or the indication that the gear is not intended to operate in no-load mode. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites		N/A
	(e) the standby power (Psb), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	(f) the networked standby power (Pnet), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites		N/A
	(g) a warning if the control gear is not suitable for dimming of light sources or can be used only with specific types of dimmable light sources or using specific wired or wireless dimming methods. In the latter cases, detailed information on the conditions in which the control gear can be used for dimming shall be provided on the Manufacturer's or importer's website		N/A
	(h) a QR-code redirecting to a free-access website of the manufacturer, importer or authorised representative, or the internet address for such a website, where full information on the control gear can be found		N/A
3.(c)	Information to be visibly displayed on a free-access website of the manufacturer, importer or authorised representative		N/A
	Separate control gears For any separate control gear that is placed on the EU market, the following information shall be displayed on at least one free-access website:		N/A
	(a) the information specified in point 3(b)(2), except 3(b)(2)(h)		N/A
	(b) the outer dimensions in mm		N/A
	(c) the mass in grams of the control gear, without packaging, and without lighting control parts and non-lighting parts, if any and if they can be physically separated from the control gear		N/A
	(d) instructions on how to remove lighting control parts and non-lighting parts, if any, or how to switch them off or minimise their power consumption during control-gear testing for market surveillance purposes		N/A
	(e) if the control gear can be used with dimmable light sources, a list of minimum characteristics that the light sources should have to be fully compatible with the control gear during dimming, and possibly a list of compatible dimmable light sources		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	(f) Recommendations on how to dispose of it at the end of its life in line with Directive 2012/19/EU.		N/A

ANNEX II	**Energy efficiency classes and calculation method**		P
	$\eta TM = (\Phi use/P_{on}) \times F_{TM}$ (lm/W).	98.7	P
	Tested Φuse:	824.3	P
	Tested $P_{on:}$	8.35W	P
	Factors FTM by light source type	1.000	P

Light source type	Factor F_{TM}
Non-directional (NDLS) operating on mains (MLS)	1,000
Non-directional (NDLS) not operating on mains (NMLS)	0,926
Directional (DLS) operating on mains (MLS)	1,176
Directional (DLS) not operating on mains (NMLS)	1,089

	Energy efficiency classes of light sources	F	P

Energy efficiency class	Total mains efficacy η_{TM} (lm/W)
A	$210 \leq \eta_{TM}$
B	$185 \leq \eta_{TM} < 210$
C	$160 \leq \eta_{TM} < 185$
D	$135 \leq \eta_{TM} < 160$
E	$110 \leq \eta_{TM} < 135$
F	$85 \leq \eta_{TM} < 110$
G	$\eta_{TM} < 85$

Annex 1 – Results of Measurements

Model number	Luminous Flux Φtotal (lm)	Disp. Factor	Power Pon (W)	Efficacy (lm/W)	SDCM	Color Rendering (Ra)	Lamp Life (3600h)	Color Rendering (R9)
ZJ-BWBL1H-RGBWW	824.3	/	8.35	98.7	5.5	83.2	Surviving	4

Model number	Color Temperature (K)	No-Load Power Pno	Standby Power Psb	Network Sb. Power Pnet	Flicker Pst LM	Strob-oscopic Effect SVM	Total Luminous flux (lm) After 3600h	Lumen Mainten-ance at 3600h (%)
ZJ-BWBL1H-RGBWW	6748	N/A	N/A	N/A	0.009	0.04	743.5	90.2

Annex 1 – Photo

----------End of Report---------